

#### CATERPILLAR INC.

EXECUTIVE ORDER U-R-001-0555-1 New Off-Road Compression-Ignition Engines

Pursuant to the authority vested in California Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL ENGINE FAMILY		DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)		
2019	KCPXL09.3NTF	9.3	Diesel 80			
SPECIA	AL FEATURES & EMISSION	ON CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION			
Oxidation	n Catalyst, Engine Conti	harger, Charge Air Cooler, rol Module, Periodic Trap duction-Urea, Ammonia talyst	Loader, Tractor, Excavator			

The engine models and codes are attached.

The following are the exhaust certification standards (STD), or family emission limit(s) (FEL) as applicable, and certification levels (CERT) for non-methane hydrocarbon (NMHC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

POWER CLASS	EMISSION STANDARD CATEGORY			E	EXHAUST (g/kw-	OPACITY (%)				
			NMHC	NOx	NMHC+NOx	СО	PM	ACCEL	LUG	PEAK
130 ≤ kW ≤ 560	Tier 4 Final	STD	0.19	0.40	N/A	3.5	0.02	N/A	N/A	N/A
		FEL	N/A	N/A		N/A	0.01	N/A	N/A	N/A
		CERT	0.05	0.19		0.2	0.01			

BE IT FURTHER RESOLVED: That the family emission limit(s) (FEL) is an emission level declared by the manufacturer for use in any averaging, banking and trading program and in lieu of an emission standard for certification. It serves as the applicable emission standard for determining compliance of any engine within this engine family under 13 CCR Sections 2423 and 2427.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order hereby supersedes Executive Order U-R-001-0555 dated February 8, 2018.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this

day of March 2018.

Annette Hebert, Chief

Emissions Compliance, Automotive Regulations and Science Division

## ATTACHMEN 1 OF 2

# Engine Model Summary Template U-R-001-0555-1

R/C 11/7/2019

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J193(
KCPXL09.3NTF	Cert Test 1	C9.3B	456@2000	238	160	1536@1400	287	135	DFI,TC,ECM,CAC,PTOX, OC,SCR-U.AMOX
KCPXL09.3NTF	Cert Test 2	C9.3B	408@1500	272	137	NA	NA	NA	DFI,TC,ECM,CAC,PTOX, OC.SCR-U.AMOX
KCPXL09.3NTF	1	C9.3B	335@2200	163	121	1130@1400	205	97	DFI,TC,ECM,CAC,PTOX, OC.SCR-U.AMOX
KCPXL09.3NTF	1A	1706J	335@2200	163	121	1130@1400	205	97	DFI,TC,ECM,CAC,PTOX, OC.SCR-U.AMOX
KCPXL09.3NTF	2	C9.3B	375@2200	181	134	1265@1400	229	108	DFI,TC,ECM,CAC,PTOX, OC.SCR-U.AMOX
KCPXL09.3NTF	2A	1706J	375@2200	181	134	1265@1400	229	108	DFI,TC,ECM,CAC,PTOX, OC,SCR-U.AMOX
KCPXL09.3NTF	3	C9.3B	416@2200	202	150	1401@1400	256	121	DFI,TC,ECM,CAC,PTOX, QC,SCR-U,AMOX
KCPXL09.3NTF	3A	1706J	416@2200	202	150	1401@1400	256	121	DFI,TC,ECM,CAC,PTOX, OC,SCR-U,AMOX
KCPXL09.3NTF	4	C9.3B	456@2000	238	160	1536@1400	287	135	DFI,TC,ECM,CAC,PTOX, OC,SCR-U,AMOX
KCPXL09.3NTF	4A	1706J	456@2000	238	160	1536@1400	287	135	DFI,TC,ECM,CAC,PTOX, OC,SCR-U,AMOX
KCPXL09.3NTF	5	C9.3B	314@1800	171	104	1154@1300	214	93	DFI,TC,ECM,CAC,PTOX, OC,SCR-U,AMOX
KCPXL09.3NTF	6	C9.3B	221@2200	113	84	1100@1200	206	83	DFI,TC,ECM,CAC,PTOX, OC,SCR-U,AMOX
KCPXL09.3NTF	6A	C9.3B	221@2200	113	84	1100@1200	206	83	DFI,TC,ECM,CAC,PTOX, OC.SCR-U.AMOX
KCPXL09.3NTF	7	C9.3B	274@2200	133	98	1263@1100	238	88	DFI,TC,ECM,CAC,PTOX, OC,SCR-U,AMOX
KCPXL09.3NTF	8	C9.3B	314@1800	175	106	1154@1300	217	95	DFI,TC,ECM,CAC,PTOX, OC,SCR-U.AMOX
KCPXL09.3NTF	9	C9.3B	408@1500	272	137	NA	NA	NA	DFI,TC,ECM,CAC,PTOX, OC,SCR-U,AMOX
KCPXL09.3NTF	9A	1706J	408@1500	272	137	NA	NA	NA	DFI,TC,ECM,CAC,PTOX, OC,SCR-U.AMOX
KCPXL09.3NTF	10	C9.3B	456@1800	259	157	NA	NA	NA	DFI,TC,ECM,CAC,PTOX, OC,SCR-U,AMOX
KCPXL09.3NTF	10A	1706J	456@1800	259	157	NA	NA	NA	DFI,TC,ECM,CAC,PTOX, OC,SCR-U,AMOX
KCPXL09.3NTF	11	C9.3B	343@1500	227	114	NA	NA	NA	DFI,TC,ECM,CAC,PTOX,
KCPXL09.3NTF	11A	1706J	343@1500	227	114	NA	NA	NA	DFI,TC,ECM,CAC,PTOX, OC.SCR-U,AMOX

### ATTACHMENT 2 072

### Engine Model Summary Template U-R-001-0555-1

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Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
KCPXL09.3NTF	12	C9.3B	314@1800	175	106	1154@1300	217	95	DFI,TC,ECM,CAC,PTOX, OC,SCR-U.AMOX
KCPXL09.3NTF	13*	C9.3B	416@2200	202	150	1401@1400	256	121	DFI,TC,ECM,CAC,PTOX, OC,SCR-U,AMOX
KCPXL09.3NTF	13A*	1706J	416@2200	202	150	1401@1400	256	121	DFI,TC,ECM,CAC,PTOX, OC,SCR-U,AMOX
KCPXL09.3NTF	14 2	C9.3B	416@2200	202	150	1401@1400	256	121	DFI,TC,ECM,CAC,PTOX, OC,SCR-U,AMOX

\* add new engine code.